

Remarks

Claims 1-27 were originally filed with this application. In the present response, claims 1, 5, and 12 have been amended. Therefore, claims 1-27 remain pending herein. No new matter has been added by the amendments presented herein. Reconsideration of the present application in view of the above amendments and following remarks is respectfully requested.

Applicant has amended claims 1 and 12 and paragraphs 13, 14, 21 and 63 of the specification to correct inadvertent clerical errors that were not discovered until preparing the present response. In particular, in claims 1 and 12 and paragraphs 13 and 14, Applicant has added the term “by weight” after “part[s]” with respect to the adhesion promoter. This term was unintentionally omitted when the application was drafted. Support for the term is found in paragraph 23, which states “up to about 2 parts by weight of the adhesion promoter . . .” and “up to about 1 part by weight [of the adhesion promoter]”.

In addition, the term “elastomers” in paragraphs 13 and 21 was inadvertently misspelled as “elastiomers”. Applicant has amended those paragraphs accordingly to correct the spelling.

Also, in the first table of Example 17, paragraph 63 (page 36), one of the components of the formulation was incorrectly listed as “Base Resin (III)”, when it should have been “Base Resin (IV)”. Applicant has made the appropriate change in the table. Support for the amendment comes from the first sentence of paragraph 63, which states “Primer formulations containing Base Resin (IV) from Example 16 and the following other components were prepared and tested:”

Objection to the Specification

On page 2 of the Office Action the Examiner objected to the disclosure for referring to compound (IIA) incorrectly. In particular, paragraphs 13 and 20 (pages 6 and 9, respectively) included an inadvertent typographical error. Compound (IIA) was referred to as 3,4-epoxycyclohexyl 3',4'-epoxycyclohexane carboxylate. As recognized by the Examiner, the correct name of compound (IIA) is 3,4-epoxycyclohexylmethyl-3',4'-epoxycyclohexane carboxylate. Applicants have amended the specification accordingly, as indicated in the replacement paragraphs set forth herein. Support for the amendment is found in paragraph 29, which states that the compound having structure (IIA) is 3,4-epoxycyclohexylmethyl-3',4'-epoxycyclohexane carboxylate.

Based on the above amendments, Applicants respectfully request that the objection to the disclosure be withdrawn.

Rejections Under 35 U.S.C. § 112, Second Paragraph

Claims 1-27 were rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter regarded as the invention. It is the Examiner's opinion that the basis for the parts by weight ranges in the claims is undefined, and thus these limitations are unclear. Applicant traverses the rejection for the following reasons.

Applicant submits that the "parts by weight" ranges recited in independent claims 1 and 12 clearly define the amount of each ingredient in the formulation. This language is conventionally used and understood by those of ordinary skill to mean that the sum of the parts by weight of each ingredient selected within the recited ranges is equal to the total weight of the composition. Thus, the "parts by weight" ranges for each ingredient are based on the total weight of the composition. There is no need to expressly define a basis for the "parts by weight"

of each ingredient in the claims. In fact, this practice is conventionally followed by patent practitioners in claim drafting and is accepted by the United States Patent and Trademark Office. As evidence thereof, the undersigned searched the USPTO database for the term “parts by weight” in the claims of issued U.S. patents. There were a total of 33,518 hits for the term. Several of these patents, which recite the amounts of the components in parts by weight in the claims, but which provide no basis therefore are U.S. Pat. Nos.: 5,863,970; 5,942,557; 6,783,805; 6,832,036; 6,855,756; and 6,861,153. Of course, many, many additional patents could be listed. Please note that one of the listed patents is the prior art cited by the Examiner in the Office Action, i.e. U.S. Pat. No. 5,863,970. The Examiner is invited to review the claims of these patents.

Thus, as evidenced by the aforementioned issued U.S. patents, one of ordinary skill, for example in the coating arts, understands that the parts by weight ranges for each component are relative to the total weight of a composition, which can be determined by adding together the selected parts by weight values for each component within the recited ranges.

Furthermore, Applicant submits that the basis for the parts by weight ranges of each component recited in the claims is clearly defined in the specification as being based on the total weight of the composition. For example, paragraph 18 of the disclosure states that

[t]he clear, unfilled coating compositions contain from about 90 to about 100 **parts by weight of the base resin relative to the total weight of the formulation**, and the total weight of the pigmented and/or filled compositions contain from about 35 to about 62 parts by weight of the base resin (bold added).

As another example, paragraphs 27, 32, and 33 state that the parts by weight of the cationic polymerization initiator are based on the total weight of the composition.

In a similar manner, Applicant submits that it is understood and obvious to one of ordinary skill that the parts by weight ranges of each component (A)-(D) found in the base resin are based on the total weight of the base resin. This basis is also clearly defined in the specification, for example, in paragraph 19, which states that “cycloaliphatic epoxy functional siloxane (IA) is incorporated into the base resin in amounts ranging from about 30 to about 50 parts by weight of the total base resin, and siloxane (IB), in amounts ranging from 0 to 30 parts by weight. The total weight of the base resin may then be calculated by adding the parts by weight of each ingredient (A)-(D) selected within the recited ranges.

Furthermore, the claims expressly recite specific parts by weight ranges for each ingredient included in the recited formulations. Thus, the limitations of the claims are clearly defined. As previously stated, one simply needs to select a parts by weight value for each component of the composition within the ranges set forth therein, and add them together to arrive at the total weight of the formulation. After the selections have been made, if desired, one may calculate the percentage by weight of each ingredient by dividing the selected parts by weight value of each component by the total weight of the formulation and multiplying by 100. This is standard practice.

For all the reasons presented above, Applicant submits that the “parts by weight” ranges recited in the claims are clearly defined, and thus, the claims are no indefinite. Applicant respectfully requests that this rejection of claims 1-27 under 35 U.S.C. § 112, second paragraph, be withdrawn.

In claims 1 and 12, the Examiner recognized that 3,4-epoxycyclohexyl 3',4'-epoxycyclohexane carboxylate is not the correct name for structure (IIA) recited in the claims. As mentioned above, the correct name for structure (IIA) is 3,4-epoxycyclohexylmethyl-3',4'-epoxycyclohexane carboxylate. Applicant has amended claims 1 and 12 accordingly. Support

for the amendment is found in paragraph 29, which states that the compound having structure (IIA) is 3,4-epoxycyclohexylmethyl-3',4'-epoxycyclohexane carboxylate.

As a minor informality, the Examiner noticed that the term “elastomers”, compound (v), in claims 1 and 12 was misspelled as “elastiomers”. Applicant has corrected the spelling in claims 1 and 12.

Based on the amendments presented herein, Applicant respectfully submits that these last two rejections of claims 1 and 12 under § 112, second paragraph have been overcome.

Rejection under 35 U.S.C. § 102(b)

Claims 1-3, 10, 12-14, and 20 were rejected under 35 U.S.C. § 102(b) as being anticipated by Ghoshal et al. (U.S. Pat. No. 5,863,970). It is the Examiner's opinion that Ghoshal teaches the compositions recited in the aforementioned claims. To overcome this rejection, Applicant has amended claims 1 and 12. Not all the features recited in Applicant's amended claims 1 and 12 are taught by Ghoshal.

It is the Examiner's opinion that Ghoshal teaches epoxy resin compositions, which include Applicant's base resin and cationic polymerization initiator, as recited in Applicant's originally submitted claims 1 and 12. With respect to the base resin, Ghoshal teaches Applicant's siloxane monomer having structure (IA), Applicant's non-siloxane epoxies (IIA) and (IIB), as well as elastomers. With respect to the cationic polymerization initiator, Ghoshal teaches a 50 wt. % solution of a diaryliodonium salt having formula (III) in EECH as the carrier medium. Thus, Ghoshal anticipates claims 1, 2, 3 (when the catalyst is the antimonate catalyst (IIIB), and 10.

With regard to claims 12-14 and 20, Ghoshal teaches that fillers may be added to the base resin, as recited in Applicant's claims.

However, Ghoshal neither teaches nor suggests epoxy compositions containing Applicant's siloxane oligomer having structure (IB). Applicant has amended claims 1 and 12 to include in the recited compositions from about 5 to about 30 parts by weight of the siloxane oligomer having structure (IB), which was optional component (B) in the originally presented claims. Support for the amendment to claim 1, which recites clear coating compositions, is found in Example 3, paragraph 45, on page 22 of the specification. In particular, formulation 3B of Example 3 includes 5 parts by weight PC-2003, which is an embodiment of the oligomer having structure (IB). Support for the amendment to claim 12, which recites coating compositions containing fillers, etc., is found in paragraph 22 of the specification. In particular, paragraph 22 discloses a filled/pigmented formulation, wherein the base resin contains 5 parts by weight of oligomer (IB).

Because Ghoshal neither teaches nor suggests epoxy resin compositions containing siloxane oligomer (IB), as required in amended claims 1 and 12, not all the ingredients in Applicant's recited compositions are disclosed by Ghoshal. Therefore, Applicant's amended claims 1 and 12 are not anticipated by Ghoshal. Likewise, claims 3 and 10, which depend from amended claim 1 and include all the limitations thereof, are not anticipated by Ghoshal, and claims 13, 14, and 20, which depend from amended claim 12 and include all the limitations thereof are not anticipated by Ghoshal.

For these reasons, Applicant respectfully submits that the amendments to claims 1 and 12 overcome the rejection of claims 1-3, 10, 12-14, and 20 under 35 U.S.C. § 102(b).

Rejections under 35 U.S.C. §§ 102(b)/103(a)

Claims 4, 15, 22, 24, 26, and 27 were rejected under 35 U.S.C. § 102(b) as being anticipated by, or in the alternative, under 35 U.S.C. § 103(a) as being obvious over the aforementioned patent to Ghoshal (U.S. Pat. No. 5,863,970). Applicant submits that the amendments to claims 1 and 12 also overcome these rejections.

With respect to composition claims 4 and 15, the Examiner states the claimed amounts of the catalyst and carrier (about 40 wt. % and about 60 wt. %) would be anticipated by or obvious over the 50/50 wt. % disclosed in examples of the patent. With respect to method claims 22 and 24, as well as coated article claims 26 and 27, it is her opinion that the curing temperature recited in the claims could be optimized from the thermal curing conditions disclosed in Ghoshal (col. 13, lines 30-35).

Applicant submits that the discussion presented above with respect to the amendment of claims 1 and 12 to overcome the anticipation by Ghoshal of claims 1-3, 10, 12-14 and 20 also apply to the §§ 102(b)/103(a) rejection of claims 4, 15, 22, 24, 26, and 27. Ghoshal neither teaches nor suggests epoxy compositions containing siloxane oligomer (IB). The use of a 40/60 wt. % catalyst/carrier in the composition of Ghoshal and optimized curing temperatures do nothing to cure the failure of Ghoshal to teach Applicant's compositions, which include siloxane oligomer (IB), as recited in amended claims 1 and 12.

Therefore, because claims 1 and 12, as amended herein, are neither anticipated by nor obvious over the reference, claims 4, 22, and 26, which depend from claim 1 and also require oligomer (IB) as an ingredient of the compositions recited therein, are neither anticipated by nor obvious over Ghoshal. Likewise, claims 15, 25, and 27, which depend from claim 12 and also

include oligomer (IB) in the recited compositions, are neither anticipated by nor obvious over the reference.

For these reasons, Applicant respectfully submits that the amendments to claims 1 and 12 overcome the rejection of claims 4, 15, 22, 24, 26, and 27 under 35 U.S.C. § 102(b) and under 35 U.S.C. § 103(a).

Rejection under 35 U.S.C. § 103(a)

Claims 5-9, 11, 18, 19, and 21 were rejected under 35 U.S.C. § 103(a) as being obvious over Ghoshal (U.S. Pat. No. 5,863,970). Again, Applicant's amendments to claims 1 and 12, as well as the amendment to claim 5, overcome this rejection.

With respect to claim 5, Applicant has amended claim 5 to recite that siloxane oligomer having structure (IB) must also be included in the embodiment recited therein. In the originally presented claim 5, siloxane oligomer (IB) was an optional ingredient. However, the formulation recited in amended claim 1 from which claim 5 depends requires at least about 5 parts by weight of the siloxane oligomer having structure (IB). Amended claim 5 now requires that the composition recited therein contain from about 5 to about 15 parts by weight of siloxane oligomer (IB). Support for the amendment to claim 5 comes from Example 3, paragraph 45, on page 22 of the specification. In particular, clear coating formulation 3B of Example 3 includes 5 parts by weight PC-2003, which is an embodiment of the oligomer having structure (IB)

In connection with claim 5, the Examiner states that Ghoshal teaches diglycidyl ether of bisphenol A having structure (IIB), wherein $n=0$, and that it would be obvious to include multiple epoxy resins including one based on a bisphenol A diglycidyl ether into the composition of Ghoshal. With respect to claim 6, she once again states that it would be obvious to include

catalyst solutions comprising about 40 wt.% catalyst and 60 wt. % carrier solution. In addition, it is her opinion that a composition using only a phosphate catalyst therein, as recited in claims 11 and 21, would be obvious because Ghoshal teaches a phosphate catalyst at col. 10, line 50 as an alternative to the antimonate catalyst.

With respect to claims 7-9, 18, and 19, Ghoshal does not teach a blend of antimonate and phosphate catalysts. However, it is the Examiner's opinion that it would be obvious to combine the two catalysts to be used for the same purpose as the individual catalysts to obtain comparable curing properties.

The discussion presented above with respect to the amendment of claims 1 and 12 and the anticipation of claims 1-3, 10, 12-14 and 20 also apply to the obviousness rejection of claims 5-9, 11, 18, 19, and 21. As previously stated, Ghoshal neither teaches nor suggests epoxy compositions containing siloxane oligomer (IB). The addition of a diglycidyl ether of bisphenol A to the composition of Ghoshal does nothing to cure the failure of the reference to teach Applicant's compositions containing siloxane oligomer (IB). Neither does the inclusion of a catalyst solution comprising about 40 wt.% catalyst and 60 wt. % carrier or the use of an all phosphate catalyst. Likewise, use of a cationic polymerization initiator, which is a blend of antimonate and phosphate catalysts in the composition of Ghoshal does not result in Applicant's compositions, which require a siloxane oligomer of structure (IB), as recited in amended claims 1 and 12, as well as amended claim 5.

Therefore, because claims 1 and 12, as amended herein, are neither anticipated by nor obvious over the reference, amended claim 5 and claims 6-9 and 11, which depend from claim 1 and therefore also require oligomer (IB) in the recited compositions, are not obvious over Ghoshal. Claims 18, 19, and 21, which depend from claim 12 and also require oligomer (IB) in the recited compositions, are also not obvious over the reference.

For these reasons, Applicant respectfully submits that the amendments to claims 1, 5, and 12 overcome the rejection of claims 5-9, 11, 18, 19, and 21 under 35 U.S.C. § 103(a).

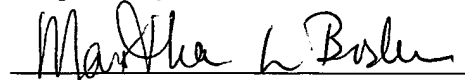
Allowable Claims

The Examiner states that claims 16, 17, 23, and 25 would be allowable if rewritten to overcome the rejections under 35 U.S.C. § 112, second paragraph, set forth above and to include all the limitations of the base claims and any intervening claims. The § 112 rejections have been addressed. Furthermore, because Applicant's amendments to claims 1 and 12, from which claims 16, 17, 23, and 25 depend, have overcome the prior art rejections, claims 16, 17, 23, and 25 are in condition for allowance, as originally written.

The references made of record but not relied upon by the Examiner have been reviewed. Based on this review, the references are not believed to be material to the patentability of the present invention.

There being no further outstanding issues, Applicant submits that the application is now in condition for allowance, and Applicant respectfully requests the same. However, should the Examiner have any questions or further comments regarding the pending claims, she is invited to contact Applicant's representative at the number below.

Respectfully submitted,

A handwritten signature in cursive script, appearing to read "Martha L. Boden", is written over a horizontal line.

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